



PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PF040058		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP2004/050566		International filing date (day/month/year) 19.04.2004		Priority date (day/month/year) 17.04.2003
International Patent Classification (IPC) or national classification and IPC H04N7/173				
Applicant THOMSON LICENSING SA et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 5 sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 29.10.2004		Date of completion of this report 01.08.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer DE LA PENA ALVAREZ Telephone No. +31 70 340- 		

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/050566

JC20 Rec'd PCT/PTO 17 OCT 2005

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-28 as originally filed

Claims, Numbers

1-15 received on 27.01.2005 with letter of 24.01.2005

Drawings, Sheets

1/5-5/5 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
 4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/050566

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-15
	No: Claims	
Inventive step (IS)	Yes: Claims	1-15
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/EP2004/050566

Re Item V.

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The following documents are referred to in this communication:

- D1: US 5 822 524 A (HUANG SHIOW-LAANG ET AL) 13 October 1998
D2: US 5 870 134 A (BARAN PAUL ET AL) 9 February 1999
D3: SCHULZRINNE H ET AL: "Real Time Streaming Protocol (RTSP)" 3
March 2003

- 1 The International Preliminary Examination Authority (IPEA) considers that claims 1-15 are new and inventive in the sense of Art. 33(2) and 33(3) PCT.

1.1 Independent claim 1

Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parenthesis applying to this document), in terms of claim 1:

Data requesting device through at least one first communication network from at least one data server (abstract; col. 4, line 65 to col. 5, line 16; fig. 1), comprising:

- sending means for sending requests of determined data to the server (abstract; col. 4, line 65 to col. 5, line 16; col. 5, lines 59-64; fig. 1),
- receiving means for receiving streamed data from said server via said first communication network and for providing said data to processing means for them to be exploited (col. 4, line 65 to col. 5, line 34),
- and control means for producing pause control signals, intended for pausing data streaming from said server, and for triggering the sending of said pause control signals to said server through said sending means (col. 6, lines 1-54).

The subject-matter of claim 1 differs from what is already disclosed in document D1 in that:

- (i) all data sent from the sending means to the server is sent via a second communication network;
- (ii) the data requesting device generates and sends periodic normal state signals to the server
- (iii) the period of the periodic normal state signals is given by the client to the server

The technical problem to be solved by the present invention may be regarded as how to reduce the risks of undue data streaming in case of failures at the receiver side or within the communication network between the data server and the receiver (see the description, page 2, lines 15-20).

None of the documents known from the prior art discloses or suggests such a solution. Hence, the subject-matter of claim 1 is inventive (Art. 33(3) PCT).

- 1.2 Independent claim 9 is a representation of claim 1 in terms of a method. Therefore, claim 9 is also inventive (Art. 33(3) PCT).
- 1.3 Independent claims 10 and 14 cover essentially the same subject-matter of claim 1 in terms of the corresponding data transmitting device and data transmitting process. Therefore, claims 10 and 14 are also inventive (Art. 33(3) PCT).
- 1.4 Independent claim 15 is a representation of claims 9 and 14 in terms of a computer program product. Therefore, claim 15 is also inventive (Art. 33(3) PCT).
- 2 Dependent claims 2-8, 11-13 include all of the features of the independent claims to which they refer, and hence claims 2-8, 11-13 also meet the requirements of the PCT in respect of inventive step.

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AMENDED CLAIMS

(110) 1. Data requesting device (2) through at least one first communication network (5) from at least one data server (10), comprising:

sending means (22) for sending requests (REQU) of determined data to the server (10) via at least one second communication network (6),

receiving means (23) for receiving streamed data (DATA) from said server (10) via said first communication network (5) and for providing said data to processing means (24) for them to be exploited,

and control means (30) for producing pause control signals (XOFF), intended for pausing data streaming from said server (10), and for triggering the sending of said pause control signals (XOFF) to said server (10) via said second network (6) through said sending means (22),

characterized in that said data requesting device (2) comprises maintenance means (31) for generating normal state signals (NORMAL, KEEPALIVE), intended to said server (10) for testifying normal operation at said data requesting device (2), and for triggering periodic transmission of said normal state signals (NORMAL, KEEPALIVE) to said server (10) via said second network (6) through said sending means (22), said data requesting device (2) comprising means to give the period of the periodic transmission of said normal state signals (NORMAL, KEEPALIVE) as a parameter to said server (10).

2. Data requesting device (2) according to claim 1, characterized in that said control means (30) are intended to produce also resume control signals (XON), intended for resuming data streaming from said server (10) after pausing, and said sending means (22) are intended to transmit to said server (10) via said second network (6) said resume control signals (XON).

3. Data requesting device (2) according to any of claims 1 or 2, characterized in that said data requesting device (2) comprises a user interface (35), enabling a user to trigger said control means (30) and said

sending means (22), so as to cause said control signals (XOFF, XON) to be provided to said server (10) via said second network (6).

4. Data requesting device (2) according to any of the preceding claims, characterized in that said received data (DATA) being stored in a central memory (26) before being exploited, said data requesting device (2) comprises regulation means (32), intended to trigger said control means (30) to produce a pause control signal (XOFF) when said data in said central memory (26) exceed a predetermined high threshold level (HFIFO) of said central memory (26).

5. Data requesting device (2) according to claim 4, characterized in that said regulation means (32) are intended to trigger said control means (30) to produce a resume control signal (XON) when said streaming has been paused by said regulation means (32) and said data in said central memory (26) decrease down to a predetermined low threshold level (LFIFO) of said central memory (26).

6. Data requesting device (2) according to any of claims 4 or 5, characterized in that at least one of said threshold levels (HFIFO, LFIFO) of said central memory (26) depends on a round-trip time (RTT) between said data requesting device (2) and said server (10).

7. Data requesting device (2) according to any of the preceding claims, characterized in that:

said receiving means (23) are intended to receive special warning messages (WARN) from said server (10) via said first network (5) when said server (10) has not received said normal state signals (NORMAL, KEEPALIVE) in due time,

and said maintenance means are intended to trigger the sending of a normal state signal (NORMAL, KEEPALIVE) to said server (10) via said second network (6) as soon as said special warning message (WARN) is received.

8. Decoder, characterized in that it comprises a data requesting device (2) according to any of claims 1 to 7.

9. Data requesting process through at least one first communication network (5) from at least one data server (10), comprising the following steps:

sending requests (REQU) of determined data to the server (10) via at least one second communication network (6),

receiving streamed data (DATA) from said server (10) via said first communication network (5) for them to be exploited,

and producing and sending to said server (10) via said second network (6), pause control signals (XOFF), intended for pausing data streaming from said server (10),

characterized in that said data requesting process comprises generating and periodically transmitting to said server (10) via said second network (6), normal state signals (NORMAL, KEEPALIVE), intended to said server (10) for testifying normal operation at said data requesting device (2), and giving the period of the periodic transmission of said normal state signals (NORMAL, KEEPALIVE) to said server (10).

10. Data transmitting device (1) via at least one first communication network (5) comprising:

receiving means (11) for receiving requests (REQU) of determined data from at least one data requesting device (2) via at least one second communication network (6),

and streaming means (13) for triggering streaming of said data (DATA) to said data requesting device (2) via said first network (5),

said receiving means (11) being intended to receive from said data requesting device (2) pause control messages (XOFF), and said streaming means (13) being intended to pause said data streaming when said pause control messages (XOFF) are received,

characterized in that:

said receiving means (11) are intended to receive periodically normal state signals (NORMAL, KEEPALIVE) from said data requesting device (2),

to receive the period at which said periodically normal state signals (NORMAL, KEEPALIVE) will be sent by said data requesting device (2),

and said data requesting device (2) comprises alarm means (15) intended to trigger an alarm state when said normal state signals (NORMAL, KEEPALIVE) are not received in due time,

said data transmitting device (1) being preferably provided for a data requesting device (2) according to any of claims 1 to 7.

11. Data transmitting device (1) according to claim 10, characterized in that said alarm means (15) are intended to trigger said alarm state when any of said normal state signals (NORMAL, KEEPALIVE) is not received after a safety duration following an expected periodic time for receiving said normal state signal, said safety duration depending on a round-trip time (RTT) between said data requesting device (2) and said data transmitting device (1).

12. Data transmitting device (1) according to any of claims 10 or 11, characterized in that:

said alarm means (15) are intended to produce a warning message (WARN) when any of said normal state signals (NORMAL, KEEPALIVE) is not received in due time,

said data transmitting device (1) comprises transfer means (14) intended to send said warning message (WARN) to said data requesting device (2) via said first network (5),

and said alarm means (15) are intended to trigger said alarm state only when a complementary duration has elapsed after the sending of said warning message (WARN).

13. Data transmitting device (1) according to any of claims 9 to 12, characterized in that said receiving means (11) are intended to receive resume control messages (XON) from said data requesting device (2), and said streaming means (13) are intended to resume said data streaming when

said streaming has been paused and one of said resume control messages (XON) is received.

14. Data transmitting process via at least one first communication network (5) comprising the following steps:

receiving requests (REQU) of determined data from at least one data requesting device (2) via at least one second communication network (6),

streaming said data (DATA) to said data requesting device (2) via said first network (5),

and receiving from said data requesting device (2) pause control messages (XOFF), and pausing said data streaming when said pause control messages (XOFF) are received,

characterized in that it comprises also the following steps:

receiving periodically normal state signals (NORMAL, KEEPALIVE) from said data requesting device (2),

receiving the period at which said periodically normal state signals (NORMAL, KEEPALIVE) will be sent by said data requesting device (2),

and triggering an alarm state when said normal state signals (NORMAL, KEEPALIVE) are not received in due time,

said data transmitting process being preferably intended to be executed by a data transmitting device (1) compliant with any of claims 10 to 13.

15. Computer program product, characterized in that it comprises program code instructions for executing the steps of one of the processes of claims 9 and 14 when said program is executed on a computer.